



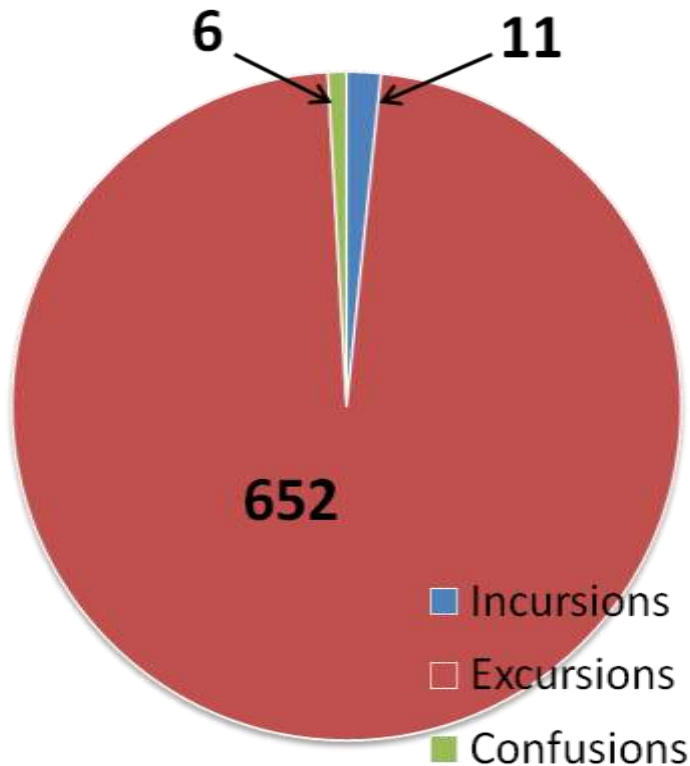
**NTSB** National Transportation Safety Board

# Collaboration to Improve Runway Safety

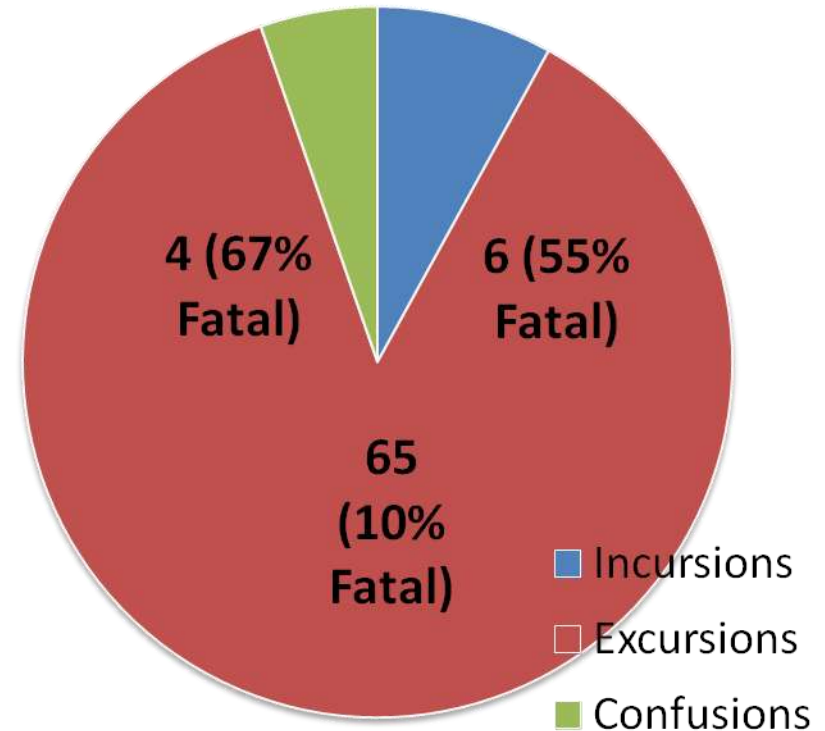
Presentation to: CAST  
Name: Christopher A. Hart  
Date: June 7, 2012

# Runway Accidents, 1995-2010

All Runway Accidents



Fatal Runway Accidents



**Note: Of 1429 accidents involving major or substantial damage from 1995-2008, 431 (30%) were runway related**

# Runway Accident Fatalities, 1995-2010

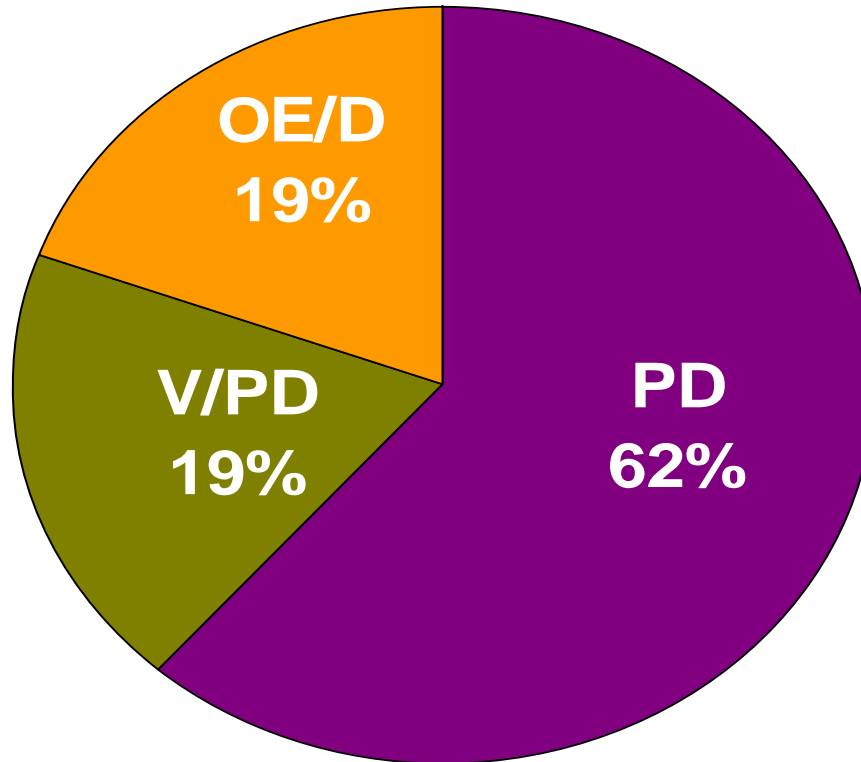


# **Runway Incursions**

- Previously defined by FAA as hazard created by airplane or vehicle on the runway when it should not have been**
- Now generally defined as airplane or vehicle on the runway when it should not have been, whether or not hazard was created**



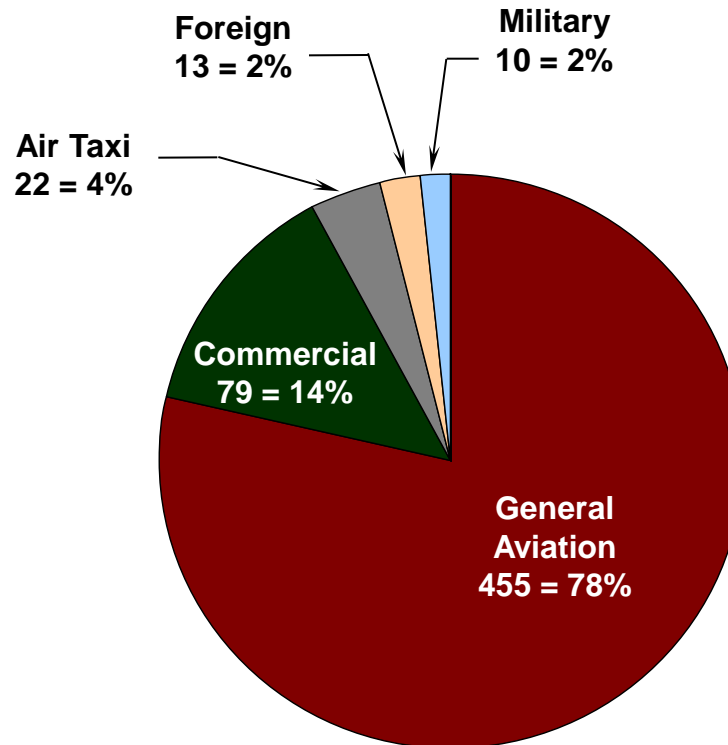
# Types of Runway Incursions



**FY 2006-2011**

Source: FAA

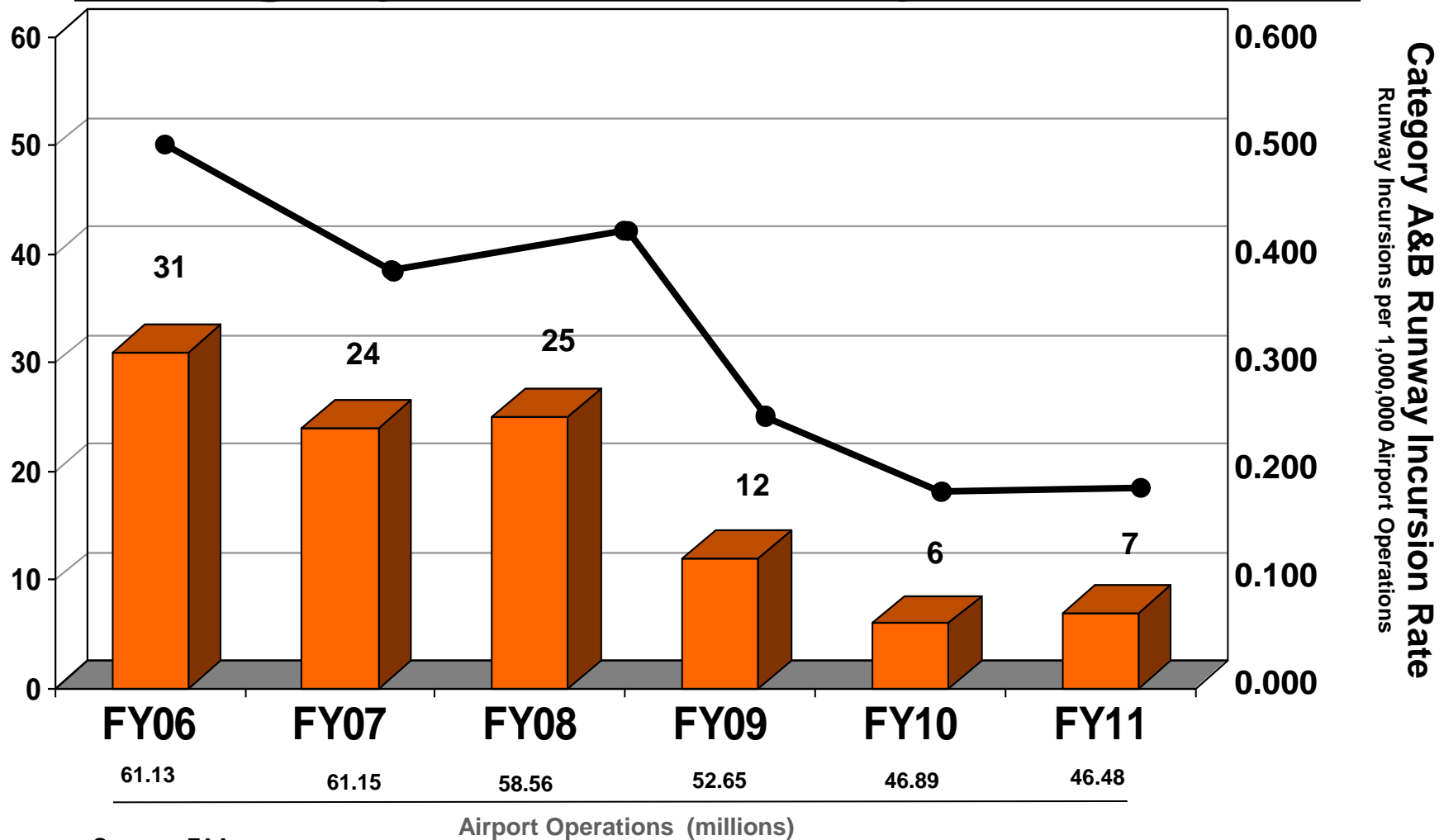
# Runway Incursion Pilot Deviations by Type of Operation



**579 Pilot Deviations**

Source: FAA

# Category A&B Runway Incursions



# **NTSB Recommendations**

- Immediate Collision/Incursion Warning in the Cockpit**
- Specific Clearance for Each Runway Crossing (Closed Acceptable)**
- Cockpit Moving Map Displays to Alert re Wrong Runway**



# **The Challenge**

- Tenerife runway incursion accident resulted in more fatalities (583) than any accident in aviation history**
- Many more airplanes, very few new runways**
- Inadequate understanding of “Why”**
- Runway incursions reflect system problems that demand system solutions**



# **Current Process**

- ATC identifies type of problem**
- Handling of problem depends largely on ATC's identification of who made the last "mistake"**
- If ATC says ATC made last mistake:  
handled by ATC**
- If ATC says pilot made last mistake:  
handled by FAA Flight Standards**

# **Result**

- Selection bias**
- Process was created to identify whom to punish, rather than to identify and remedy problems in the system**
- Each person says it was other person's fault, cannot get complete picture from one person**
- Does not result in system solutions for system problems**

# **Suggested Solution: Collaboration**

- Precedent: Altitude busts, early 1990's**
- Altitude bust rate stubbornly resisted improvement, despite vigorous enforcement**
- John Kern proposed collaborative approach**
- Result: Rate decreased substantially**
- CAST has demonstrated how successful collaboration can be to improve aviation safety**



# **Collaboration for Runway Safety?**

- Process should not depend upon who made last mistake**
- Bring all involved parties (pilots, controllers, vehicle drivers) together, find out what happened**
- No enforcement action (absent criminal or intentional wrongdoing)**
- Ascertain totality of circumstances**



# **Starting Out**

- Try limited number as beta tests**
- Start with trouble spot locations**
- Beta test lesser events, that NTSB will not investigate**
- Beta test systemic issues, not just “Joe had a bad day”**
- Determine from beta test experience whether to continue and expand process**

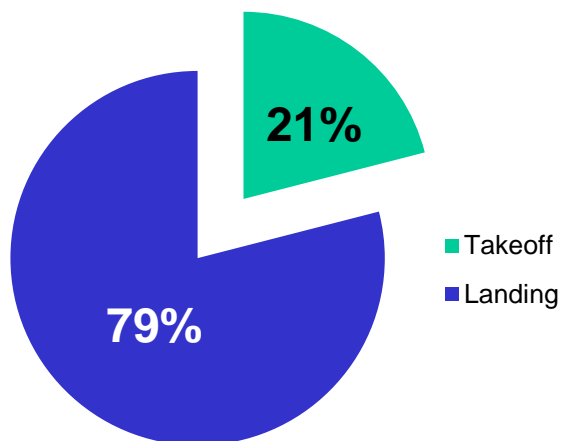


# **Runway Excursions**

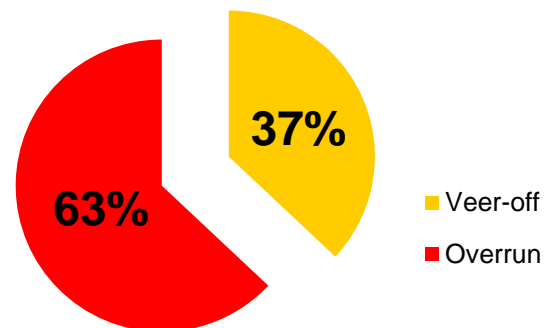
- Includes takeoff overruns, landing overruns, and departing the runway laterally during takeoff or landing**
- Does not include landing short**
- Almost 60 times more excursion accidents than incursion accidents**
- Almost 11 times more fatal accidents, and almost 9 times more fatalities, from excursions than incursions**

# Runway Excursions

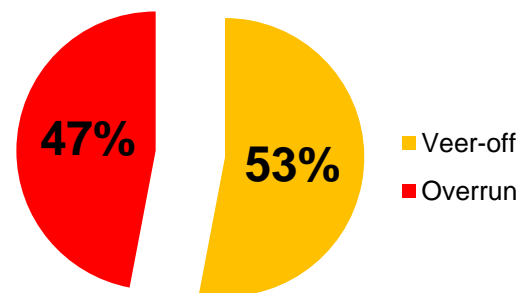
**Total Excursions**



**Takeoff Excursions**



**Landing Excursions**



# **Collaborative Process?**

- Worth considering**
- Not as likely to be helpful**

# **Runway Confusions**

- Includes using other than dedicated or assigned surface for takeoff or landing, e.g., taxiway other than runway, or wrong runway**
- Less than 1% of runway related accidents**

# **Collaborative Process?**

- May be as helpful as with incursions**
- Not as many opportunities**

# **Conclusion**

- CAST has demonstrated how successful effective collaboration can be**
- NTSB relies heavily upon collaboration in accident investigations**
- Collaboration can also help aviation community address runway incursions, confusions, and possibly also excursions**



**Thank You!!!**



*Questions?*